Department of Health & Human Services
Health Care Financing Administration
Operational Policy Letter #116
OPL2000.116

Date: March 1, 2000

Subject: Quality Improvement System for Managed Care (QISMC)
Year 2000 National Project on Community-Acquired Pneumonia

Effective Date: January 1, 2000 (Effective upon Issuance-Retroactive to January 1)

Background:

According to the Centers for Disease Control and Prevention, pneumonia and influenza are the sixth leading causes of death in the United States. The incidence of pneumonia increases with age and approximately 90 percent of deaths attributed to this condition are in the population age 65 and older. Medicare patients with pneumonia are being hospitalized at the rate of approximately 600,000 per year, utilize over 4.2 million inpatient days, and account for more than 500,000 emergency department visits each year.

Medicare+Choice (M+C) plans are required by contract and QISMC to initiate two Quality Assessment and Performance Improvement (QAPI) projects per year, one of which is on a topic chosen by HCFA. For 1999, the national project was diabetes. For the year 2000, the national project will be community-acquired pneumonia. For further details M+C organizations (M+CO) are referred to Domain 1 of QISMC.

The purposes of this Operational Policy Letter (OPL) are to: (1) provide M+COs with an overview of the National Pneumonia Project, (2) identify the quality indicators to be used for the QAPI project, and (3) briefly discuss plans for the project initiation and implementation. The attachments provided by the National Pneumonia team provide quality indicators that were primarily developed for use in inpatient settings. Quality indicator numerators, denominators, and data sources may be modified to be used in MCO settings other than inpatient (See Attachments I, II, III).

Overview of Pneumonia Project

The main objective of this project is to decrease the morbidity and mortality associated with community-acquired pneumonia in Medicare beneficiaries enrolled in M+COs. In order to accomplish this goal, a series of process objectives have been developed which include:

- increase immunization rates for pneumococcal and influenza vaccines,
- increase the number of inpatients receiving timely antibiotic administration,
- increase the use of initial antibiotic therapy consistent with current guidelines,
- for inpatients, increase the collection of blood cultures prior to the initial antibiotic dose, and
- increase the number of hospitalized patients screened for or given pneumococcal or influenza vaccines.

National Pneumonia Project Quality Indicators

Over the past two years, the Health Care Financing Administration (HCFA) has worked with a Pneumonia technical expert panel whose members include representatives from the American Thoracic Society, the Infectious Disease

Society of America, the Pneumonia Patient Outcomes Research Team, the American Pharmacy Association, the Institute of HealthCare Improvement, and other influenza/pneumococcal experts. This panel guided the writing of the final pneumonia indicators based upon a combination of both ambulatory and hospital based data.

Managed care organizations (MCO) may choose one or more of the national pneumonia indicator(s) from the list below. In addition to the seven defined quality indicators, HCFA is also interested in exploring other alternative options with M+COs (as described below). The seven national pneumonia indicators are:

1. influenza vaccination rates,
2. pneumococcal vaccination rates,
3. proportion of patients given an initial antibiotic consistent with current recommendations,
4. proportion of inpatients who have blood cultures collected before antibiotics administered,
5. proportion of inpatients with pneumonia screened for or given influenza vaccination,
6. proportion of inpatients with pneumonia screened for or given pneumococcal vaccination, and
7. proportion of patients who receive the initial antibiotic dose within eight hours of hospital arrival.

Alternative MCO 8th Indicator

HCFA is aware of MCO expertise and creativity in the development of ambulatory quality indicators, as well as their participation in collaborative, community-based projects working to reduce the development of antibiotic resistant bacteria. If a QAPI project based on these activities should require a quality indicator different from the above seven, we welcome M+COs submission of those indicators for HCFA comment. This alternative quality indicator must meet the following requirements:

- indicator should affect the MCO's Medicare enrollees.
- indicator should be measurable.
- indicator should reflect the national pneumonia project goal of reducing morbidity and mortality associated with pneumonia.

Organizations interested in pursuing this 8th option should contact their HCFA Regional Office (RO) MCO plan manager.

Credit for Existing Pneumonia Project

In some cases, an organization may already be conducting a project which could readily be modified to meet the requirements of the national project. Those organizations wishing to utilize an existing pneumonia project for the purpose of initiating a project in 2000 may do so if they:
(1) follow the requirements of Domain 1 of QISMC, (2) utilize one or more of the National Pneumonia Quality Indicators (or alternative 8th indicator), (3) use the performance levels found in the year 2000 as the new 'baseline' against which the improvement is measured, and (4) initiated the project between January 1, 1999 and December 31, 2000.

Support/Communication for Projects

We encourage M+COs to work in collaboration with their local Peer Review Organization (PRO), as they proceed with the design and conduct of the pneumonia project. Under the Sixth Scope of Work, PROs are required to conduct a pneumonia project using the indicators described above. It is to the mutual advantage of the PRO and M+CO to

work collaboratively on their respective projects to promote efficiency, administrative simplification and reduction of resource burden. The Oklahoma Foundation for Medical Quality has been identified as the Pneumonia Clinical Area Support PRO, or "CASPRO", and will serve as a resource to other PROs in maintaining project staff lists, pneumonia literature and pneumonia intervention data on their web page ("www.nationalpneumonia.org."). Pneumonia data entry and analysis provider software will be available on the web site in March of 2000. In addition to PRO support, we would also like to alert MCOs about HCFA and the Centers for Disease Control and Prevention's (CDC) collaborative immunization intervention project using standing orders programs to increase adult immunization rates. There is great opportunity to use the evidence-based standing orders program and intervention materials being developed. HCFA and CDC will work as a team with representatives from MCOs to discuss implementing this program in MCO settings. More information will be provided in an upcoming OPL in the next few weeks. In the event that the M+CO chooses not to utilize the PRO, questions regarding design and implementation should be directed to the HCFA Regional Office managed care staff.

Please send any questions regarding this OPL/ pneumonia project to your RO managed care staff, or to: Judith L. Bragdon, MS, RN (410)786-1037 or Stephanie M. Vaughn-Martin, MS, RN, (410)786-6131 in the Center for Health Plans and Providers, Health Plan Administration.

Attachment I	National Pneumonia Project Final Quality Indicators
Attachment II	National Pneumonia Project Overview
Attachment III	National Pneumonia Inpatient Numerator and Denominator Measures

This OPL was prepared by the Center for Health Plans and Providers.

Attachment 1 - NATIONAL PNEUMONIA PROJECT

FINAL QUALITY INDICATORS

Quality Indicator	Source	Exclusions	Criterion Met or Acceptable Alternative
1. Proportion of patients who receive the initial antibiotic dose within 8 hours of hospital arrival	Inpatient medical record	- Transfer from acute care hospital - No working diagnosis of pneumonia - Receiving comfort care only - Initial antibiotic more than 36 hours after admission	Time from initial presentation to any antibiotic administration within 8 hours
2. Proportion of patients given an initial antibiotic consistent with current recommendations	Inpatient medical record	- Transfer from acute care hospital - Hospitalization within 14 days - No working diagnosis of pneumonia - Receiving comfort care only - Immunosuppression (HIV/AIDS, systemic chemotherapy, or leukemia/lymphoma) - Initial antibiotic more than 36 hours after admission	Non-ICU: ß-lactam* monotherapy (IV) ß-lactam (IV) + macrolide† (IV or PO) Quinolone‡ monotherapy (IV or PO) ICU: ß-lactam* (IV) + macrolide† (IV) ß-lactam* (IV) + quinolone‡ (IV) If documented ß-lactam allergy: Quinolone‡ + Clindamycin (IV) Quinolone‡ + Vancomycin (IV)
3. Proportion of patients who have blood cultures collected before antibiotics administered	Inpatient medical record	- Transfer from acute care hospital - No working diagnosis of pneumonia - Receiving comfort care only - No blood culture obtained	Documentation that blood culture collected before the date and time of administration of the initial antibiotic dose in those patients for whom blood cultures are ordered
4. Proportion of inpatients with pneumonia screened for or given influenza vaccination	Inpatient medical record	- Discharge date January 1 through September 30 - Transfer from acute care hospital - No working diagnosis of pneumonia - Receiving comfort care only - In hospital death - Principal diagnosis 487.0	Documentation of screening or administration of vaccine
5. Proportion of inpatients with pneumonia screened for or given pneumococcal vaccination	Inpatient medical record	- Transfer from acute care hospital - No working diagnosis of pneumonia - Receiving comfort care only - In hospital death	Documentation of screening or administration of vaccine
6. Influenza vaccination rate	MCO data		Received vaccine
7. Pneumococcal vaccination rate	MCO data		Received vaccine

Transfer from another acute care hospital and the absence of a working diagnosis of pneumonia stops all abstraction of information from the medical record.

* ß-lactams - cefuroxime (Kefurox, Zinacef); ceftriaxone (Rocephin); cefotaxime (Claforan); cefepime (Maxipime); ampicillin-sulbactam (Unasyn); piperacillin-tazobactam (Zosyn); imipenem-cilastatin (Primaxin); Meropenem (Merrem)
† Macrolides - erythromycin; clarithromycin (Biaxin); or azithromycin (Zithromax)
‡ Quinolones - ciprofloxacin (Cipro); ofloxacin (Floxin); levafloxacin (Levaquin); grepafloxacin (Raxar); sparfloxacin (Zagam); trovofloxacin (Trovan)

Attachment 2 - **National Pneumonia Project Overview**

Main Objective

To decrease the morbidity and mortality associated with community-acquired pneumonia in Medicare beneficiaries.

Process Objectives

- Increase the number of inpatients who receive timely antibiotic administration.
- Increase the use of initial antibiotic therapy consistent with current guidelines.
- Increase the collection of blood cultures prior to the initial antibiotic dose.
- Increase the number of hospitalized patients who are screened for or given pneumococcal and influenza vaccines.
- Increase state wide immunization rates for pneumococcal and influenza vaccines.

Quality Indicators/Performance Measures

Quality Indicator	Criterion Met or Acceptable Alternative
1. Proportion of patients who receive the initial antibiotic dose within 8 hours of hospital arrival	Time from initial presentation to any antibiotic administration within 8 hours
2. Proportion of patients given an initial antibiotic consistent with current recommendations	Non-ICU Admission: ß-lactam* monotherapy (IV) ß-lactam (IV) + macrolide† (IV or PO) Quinolone‡ monotherapy (IV or PO) ICU Admission: ß-lactam* (IV) + macrolide† (IV) ß-lactam* (IV) + quinolone‡ (IV) If documented ß-lactam allergy: Quinolone‡ + Clindamycin (IV) Quinolone‡ + Vancomycin (IV)
3. Proportion of patients who have blood cultures collected before antibiotics administered	Documentation that blood culture collected before the date and time of administration of the initial antibiotic dose in those patients for whom blood cultures are ordered
4. Proportion of inpatients with pneumonia screened for or given influenza vaccination	Documentation of screening or administration of vaccine for hospital discharges during the months of October through December
5. Proportion of patients with pneumonia screened for or given pneumococcal vaccination	Documentation of screening or administration of vaccine
6. Influenza vaccination rate	Received vaccine
7. Pneumococcal vaccination rate	Received vaccine

* ß-lactams - cefuroxime (Kefurox, Zinacef); ceftriaxone (Rocephin); cefotaxime (Claforan); cefepime (Maxipime); ampicillin-sulbactam (Unasyn); piperacillin-tazobactam (Zosyn); imipenem-cilastatin (Primaxin); Meropenem (Merrem)
† Macrolides - erythromycin; clarithromycin (Biaxin); or azithromycin (Zithromax)
‡ Quinolones - ciprofloxacin (Cipro); ofloxacin (Floxin); levafloxacin (Levaquin); grepafloxacin (Raxar); lomefloxacin (Maxaquin); sparfloxacin (Zagam) trovofloxacin (Trovan)

Public Health Importance

Pneumonia and influenza are the 6th leading causes of death in the United States.[1] Approximately 600,000 Medicare patients are hospitalized utilizing more than 4.2 million inpatient days each year.[2] In 1993, more than $3.5 billion was spent on inpatient care of Medicare patients with pneumonia.[3] Pneumonia is also the principal reason for more than 500,000 emergency department visits by Medicare patients each year.[2] The incidence of pneumonia increases with age and approximately 90 percent of deaths due to this condition are in the population aged 65 and older.[1,4,5]

Clinical Background

Based on a review of medical evidence and the consensus of an expert panel, the following principals guided the development of the quality indicators

The relationship between early antibiotic administration and lower 30-day mortality rate.

Previous studies evaluating the impact of changing processes of care including the administration of antibiotics within 4 hours of hospital admission for patients with community-acquired pneumonia have demonstrated this relationship.[6,7] Most recently, data from the Medicare Quality Indicator System (MQIS) pneumonia module revealed a 15 percent lower odds of 30-day mortality when antibiotics were administered within 8 hours of hospital arrival.[8]

The association between blood cultures and a lower 30-day mortality rate.

Data from the MQIS pneumonia module demonstrated the association between blood cultures within 24 hours of hospital arrival and a lower 30-day mortality rate.[8] Routine blood cultures are recommended in guidelines for management of community-acquired pneumonia from the American Thoracic Society (ATS)[9] and the Infectious Diseases Society of America (IDSA).[10] The emergence of antibiotic-resistant strains of *Streptococcus pneumoniae* and the need for pathogen-directed antimicrobial therapy emphasize the need for routine cultures.[10]

Empiric antibiotic selection to provide appropriate coverage for Streptococcus pneumoniae and to cover atypical organisms in patients who require admission to an intensive care unit.

Streptococcus pneumoniae represents the most common cause of community-acquired pneumonia and accounts for approximately two-thirds of cases of bacteremic pneumonia.[11] Both *Streptococcus pneumoniae* and *Legionella* species[12,13] are important causes of lethal pneumonia in seriously ill patients. In addition, the incidence of penicillin-resistant strains of pneumococcus has increased during the past decade.[14,15] Empiric antibiotic therapy to cover potentially resistant strains of *Streptococcus pneumoniae* and atypical organisms for patients admitted to the intensive care unit is recommended.[10]

Prevention of Pneumococcal Disease and Influenza

In spite of the fact that influenza and pneumococcal vaccines are effective[16-19] and are Medicare Part B covered benefits, they remain underutilized.[20] Strategies for immunization that include the recommendation for vaccination of outpatients and of inpatients prior to hospital discharge have been suggested.[20,21,22]

Consensus Statements and Guidelines

Guidelines for the management of community-acquired pneumonia were published in 1993 by the ATS,[9] the British Thoracic Society,[23] and the Canadian Infectious Disease Society.[24] In 1998, the Infectious Diseases Society of America (IDSA) published an evidence-based guideline for the management of community-acquired pneumonia in immunocompetent adults.[10] Revisions to the ATS and the IDSA guidelines are currently being finalized by both organizations. Recommendations for adult immunization with influenza and pneumococcal vaccines have been published by the Advisory Committee on Immunization Practices (ACIP).[20,21]

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Attachment 3

National Pneumonia Project Inpatient Numerator and Denominator Measures
June 2, 1999

QI #1. Proportion of patients who receive the initial antibiotic dose within 8 hours of hospital arrival.

Inclusion criteria:
In sample

Exclusion criteria:

Transfer from another acute care hospital
No working diagnosis of pneumonia on admission
Receiving comfort care only
Initial dose of antibiotic administered more than 36 hours after arrival
Insufficient or missing data to assess the time between arrival and first antibiotic dose

denominator: Number in sample after exclusion and inclusion criteria applied.
numerator: Those patients in denominator who receive any dose of antibiotics within 8 hours of the time of initial presentation to the hospital.

QI #2. Proportion of patients given an initial antibiotic consistent with current recommendations.

Inclusion criteria:
In sample

Exclusion criteria:

Transfer from another acute care hospital
No working diagnosis of pneumonia on admission
Receiving comfort care only
Immunosuppression (HIV/AIDS, systemic chemotherapy, or leukemia/lymphoma)
Initial dose of antibiotic administered more than 36 hours after arrival
Hospitalization within 14 days prior to admission
Insufficient or missing data on antibiotic administration, i.e., no antibiotic administration time recorded

denominator: Number in sample after exclusion and inclusion criteria applied.
numerator: Those in denominator who receive any of the following antibiotics within the first 24 hours of the hospital stay:

Non-ICU admission:

ß-lactam[1] monotherapy (IV)
ß-lactam[1] (IV) + macrolide[2] (IV or PO)
Quinolone[3] monotherapy (IV or PO)

ICU admission within 24 hours of arrival:
ß-lactam[1] (IV) + macrolide[2] (IV)
ß-lactam (IV) + quinolone[3] (IV)
If documented ß-lactam allergy:
Quinolone[3] (IV) + Clindamycin (IV)
Quinolone[3] (IV) + Vancomycin (IV)

QI #3. Proportion of patients who have blood cultures collected before antibiotics administered.

Inclusion criteria:
In sample

Exclusion criteria:
Transfer from another acute care hospital
No working diagnosis of pneumonia on admission
Receiving comfort care only
No blood cultures obtained
Insufficient or missing time data to assess whether blood cultures were collected prior to or after the first antibiotic dose.

denominator: Number in sample after exclusion and inclusion criteria applied.
numerator: Those in denominator who have a blood culture collected before the first dose of antibiotics given. Includes patients for whom blood cultures are collected prior to hospital arrival (e.g., physician's office or outpatient laboratory).

QI #4. Proportion of inpatients with pneumonia screened for or given the influenza vaccination.

Inclusion criteria:
In sample

[1] ß-lactams - cefuroxime (Kefurox, Zinacef); ceftriaxone (Rocephin); cefotaxime (Claforan); cefepime (Maxipime); ampicillin-sulbactam (Unasyn); piperacillin-tazobactam (Zosyn); imipenem-cilastatin (Primaxin); Meropenem (Merrem)

[2] Macrolides - erythromycin; clarithromycin (Biaxin); or azithromycin (Zithromax)

[3] Quinolones - ciprofloxacin (Cipro); ofloxacin (Floxin); levafloxacin (Levaquin); grepafloxacin (Raxar); sparfloxacin (Zagam); trovofloxacin (Trovan)

Discharged during the months of October, November, or December
Discharged alive

Exclusion criteria:

Transfer from another acute care hospital
No working diagnosis of pneumonia on admission
Receiving comfort care only
Principal diagnosis 487.0 (pneumonia with influenza)

denominator: Number in sample after exclusion and inclusion criteria applied.
numerator: Those in denominator for whom there is documentation of:

a) patient was screened for influenza vaccination status, **OR**
b) patient had a documented allergy to the vaccine, **OR**
c) patient was given the vaccine during admission, **OR**
d) there is documentation that the patient was referred for or instructed to receive the vaccine after admission.

QI #5. Proportion of inpatients with pneumonia screened for or given the pneumococcal vaccination.

Inclusion criteria:
In sample
Discharged alive

Exclusion criteria:

Transfer from another acute care hospital
No working diagnosis of pneumonia on admission
Receiving comfort care only
denominator: **N**umber in sample after exclusion and inclusion criteria applied.
numerator: Those in denominator for whom there is documentation of:

a) patient was screened for pneumococcal vaccination status, **OR**
b) patient had a documented allergy to the vaccine, **OR**
c)at the rate of approximately 600,000 per year, patient was given the vaccine during admission, **OR**
d) there is documentation that the patient was referred for or instructed to receive the vaccine after admission.